Membrane-Targeted HrpN Ea Can Modulate Apple Defense Gene Expression

Titre	Membrane-Targeted HrpN Ea Can Modulate Apple Defense Gene Expression
Type de publication	Article de revue
Auteur	Vergne, Emilie [1], Dugé de Bernonville, Thomas [2], Dupuis, Fabrice [3], Sourice, Sophie [4], Cournol, Raphael [5], Berthelot, P. [6], Barny, Marie-Anne [7], Brisset, Marie-Noëlle [8], Chevreau, Elisabeth [9]
Editeur	American Phytopathological Society
Type	Article scientifique dans une revue à comité de lecture
Année	2014
Langue	Anglais
Date	2014/02
Numéro	2
Pagination	125 - 135
Volume	27
Titre de la revue	Molecular Plant-Microbe Interactions
ISSN	0894-0282
Résumé en anglais	Fire blight caused by Erwinia amylovora is the major bacterial disease of tribe Maleae, including apple. Among the proteins secreted by this bacterium, HrpNEa, also called harpin, is known to induce hypersensitive response in nonhost plants and to form amyloid oligomers leading to pore opening in the plasma membrane and alteration of membrane homeostasis. To better understand the physiological effects of HrpNEa in the host plant, we produced transgenic apple plants expressing HrpNEa with or without a secretion signal peptide (SP). HrpNEa expressed with a SP was found to be associated within the membrane fraction, in accordance with amyloidogenic properties and the presence of transmembrane domains revealed by in silico analysis. Expression analysis of 28 apple defense-related genes revealed gene modulations in the transgenic line expressing membrane-targeted HrpNEa. While apple transgenic trees displaying a high constitutive expression level of SP-HrpNEa showed a slight reduction of infection frequency after E. amylovora inoculation, there was no decrease in the disease severity. Thus HrpNEa seems to act as an elicitor of host defenses, when localized in the host membrane.
URL de la notice	http://okina.univ-angers.fr/publications/ua7987 [10]
DOI	10.1094/MPMI-10-13-0305-R [11]
Lien vers le document	http://dx.doi.org/10.1094/MPMI-10-13-0305-R [11]

Liens

[1] http://okina.univ-angers.fr/publications?f[author]=12076
[2] http://okina.univ-angers.fr/publications?f[author]=12293
[3] http://okina.univ-angers.fr/publications?f[author]=11898
[4] http://okina.univ-angers.fr/publications?f[author]=11887
[5] http://okina.univ-angers.fr/publications?f[author]=11897
[6] http://okina.univ-angers.fr/publications?f[author]=13230
[7] http://okina.univ-angers.fr/publications?f[author]=12684
[8] http://okina.univ-angers.fr/m.brisset/publications
[9] http://okina.univ-angers.fr/e.chevreau/publications
[10] http://okina.univ-angers.fr/publications/ua7987
[11] http://dx.doi.org/10.1094/MPMI-10-13-0305-R